

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION



memorandum

subject: Design Approval Request

Project No.: 109-172
F.A.P. No.: 0843(231)
Rehabilitations of Bridge Nos. 03311,
03312, 03313, 03320 and 03322
New Britain and Plainville

date: June 25, 2015

to: Mr. Theodore H. Nezames
Manager of Bridges
Bureau of Engineering and Construction

from: Timothy D. Fields *Timothy D. Fields*
for Transportation Principal Engineer
Bureau of Engineering and Construction

LOCATION:

This project is located at the I-84 and Route 72 interchange in New Britain and Plainville. Exact locations of each bridge are as follows:

<u>Bridge No.</u>	<u>Feature Carried</u>	<u>Feature Crossed</u>	<u>Municipality</u>
03311	I-84 WB (3 lanes)	Rt. 72 NB, Rt. 372, Railroad and Quinnipiac River	Plainville
03312	I-84 EB (3 lanes)	Rt. 72, Rt. 372, Railroad and Quinnipiac River	Plainville
03313	I-84 TR 815 (1 lane ramp)	I-84 EB, Rt. 72 NB, Rt. 372, Railroad and Quinnipiac River	New Britain
03320	I-84 TR 816 (1 lane ramp)	Rt. 372, Railroad and Quinnipiac River	New Britain
03322	I-84 Ramps 181 & 184 (1 lane each ramp)	I-84 and I-84 Ramp 181	New Britain

PURPOSE AND NEED:

These bridges are on the list program due to varying structural deficiencies. Bridge Nos. 03311, 03312, and 03313 are structurally deficient due to the poor condition of the steel girders. Bridge No. 03322 is structurally deficient due to the deteriorated condition of the substructure. Bridge No. 03320 has been added to the project due to its close proximity to the other bridges, and shows signs of similar deterioration to the steel girders and concrete deck.

DESCRIPTION:

Each bridge listed above consists of a multi-span steel multi-girder superstructure composite with a reinforced concrete deck. Bridge Nos. 03311, 03312, 03313, and 03320 have substructures consisting of reinforced concrete abutments and piers with post tensioned hammerhead pier caps. Additionally, Bridge Nos. 03311, 03312, and 03313 each have an isolated pier bent with a steel girder cap with fixed hinge girder connections. Bridge No. 03322 has a substructure consisting of reinforced concrete abutments and piers.

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The overall scope of rehabilitation for these bridges consists of full and partial depth patching of the deck, applying a new membrane waterproofing and bituminous overlay, repairing, cleaning and painting the steel superstructure members as necessary, and patching the substructure as necessary. Superstructure rehabilitation consists of steel repairs by installing plates at locations noted in the inspection report and cleaning and painting the beam ends and bearing devices. The south fascia girder over I-84 EB of Bridge No. 03313 will also be painted. The expansion bearings on Bridge No. 03322 at the abutments will be replaced with elastomeric bearings. The parapets on Bridge Nos. 03312, 03313, 03320 and 03322 will be modified in accordance with the latest parapet modification detail. The post tensioned pier caps for Bridge Nos. 03311, 03312, 03313, and 03320 will be temporarily supported in place and repaired. The substructure for Bridge No. 03322 will be repaired utilizing variable depth patch as required.

Construction on Bridge Nos. 03311 and 03312 will be performed utilizing temporary lane shifts and lane closures of I-84. During each stage, two or three lanes of I-84 traffic will be maintained on each bridge to perform full and partial depth deck patching, placing new membrane waterproofing and bituminous overlay and installing the new asphaltic plug expansion joints. I-84 traffic will be reduced to two lanes for short durations during summer months. Temporary precast concrete barrier curb (TPCBC) will be used to provide positive protection between the work area and travel lanes. Parapet modification to Bridge No. 03312 will be performed in conjunction with deck patching. Interruptions to Route 72 are anticipated for superstructure and substructure repairs. Traffic along Route 72 will have to be shifted to accommodate temporary supports of the pier caps and off-peak lane closures may be utilized to perform superstructure repairs. Route 372 may require lane shifts and possible lane closures to perform similar activities.

Construction on Bridge Nos. 03313 and 03320 will be performed utilizing lane shifts of the ramp. A 12-foot travel lane will be provided during each stage of construction which consists of deck patching, membrane waterproofing and bituminous overlay installation, asphaltic plug expansion joint installation and parapet modifications. Traffic along Route 72 will have to be shifted to accommodate temporary supports of the pier caps and off-peak lane closures may be utilized to perform superstructure repairs. Route 372 may require lane shifts and possible lane closures to perform similar activities.

Construction on Bridge No. 03322 will be performed utilizing lane shifts of the ramp. A 12-foot travel lane will be provided during Stages 1 and 2 and a weekend closure will be required to perform Stage 3 of construction. The top of deck construction consists of deck patching, membrane waterproofing and bituminous overlay installation, asphaltic plug expansion joint installation and parapet modifications. Cleaning and painting of the beam ends and bearing devices, and most steel repairs and substructure repairs can be performed with no interruptions to I-84 traffic. Interruptions to I-84 Ramp 181 traffic under the bridge are anticipated to perform superstructure and substructure repairs to the western pier.

OVERSIGHT DETERMINATION:

This project has not been designated as a Project of Division Interest (Federal Oversight) and was designated as State oversight.

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PUBLIC INVOLVEMENT:

In conformance with the Department's Public Involvement Guidance Manual (Revision of 2009), the Department has undertaken public involvement efforts, described as follows:

A meeting with the city of New Britain and the town of Plainville was held on May 26, 2015 to discuss the project with municipal officials. At this meeting it was determined that a Public Information Meeting was not required because the project is located on an interstate route. Attached is the report of the town meeting and the letter from the Department to each municipality confirming a Public Information Meeting will not be performed.

ENVIRONMENTAL DOCUMENTATION:

The Department has concluded that these bridges will have little or no environmental impact and thereby requires no further review for effect on socio-economic resources, air quality, noise, or historical/architectural/archaeological features. The project is located within a Level A Aquifer Protection Area, but the proposed project will have no effect on this resource.

In accordance with 23 CFR 771 and the Amended Programmatic Agreement for Processing of Certain Categorical Exclusions between the Federal Highway Administration (FHWA) and the Connecticut Department of Transportation (CTDOT), dated August 2012, the Department completed a Categorical Exclusion Determination Checklist, dated June 2015, which concluded that this project qualifies as: Programmatic Categorical Exclusion.

One state species of special concern was identified on or within the vicinity of the project site. The recommendations provided by CTDEEP Bureau of Natural Resources Wildlife Division will be included in the project documents.

ENVIRONMENTAL PERMITS:

None

UTILITIES:

Eversource
Frontier
Fibertech
Comcast

Eversource facilities will be relocated underground along Route 372 at the project site. All other aerial facilities will be temporarily supported in place or shifted as required during construction.

RIGHTS-OF-WAY:

There are no rights-of-way requirements for this project

HAZARDOUS/CONTAMINATED MATERIALS:

The Department's Environmental Compliance Section conducted a Contaminated Materials Screening Evaluation and has determined that no further investigations are warranted. The project was forwarded to an on-call consultant to screen the project for lead paint.

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